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IS 8712-3 (1978): Guidelines for co-ordination of dimensions in shipbuilding, Part 3 Co-ordination sizes for components and assemblies [TED 17: Shipbuilding]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

GUIDELINES FOR CO-ORDINATION OF
DIMENSIONS IN SHIPBUILDING

**PART III CO-ORDINATING SIZES FOR
COMPONENTS AND ASSEMBLIES**

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GUIDELINES FOR CO-ORDINATION OF DIMENSIONS IN SHIPBUILDING

PART III CO-ORDINATING SIZES FOR COMPONENTS AND ASSEMBLIES

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Indian Standard

GUIDELINES FOR CO-ORDINATION OF DIMENSIONS IN SHIPBUILDING

PART III CO-ORDINATING SIZES FOR COMPONENTS AND ASSEMBLIES

0. FOREWORD

0.1 This Indian Standard (Part III) was adopted by the Indian Standards Institution on 30 June 1978, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Marine, Cargo Movement and Packaging Division Council.

0.2 The rationalization of traditional shipbuilding methods and the increased use of prefabricated assemblies necessitates the utilization of standardized components wherever possible. It is essential to co-ordinate the dimensions of these components and of the assemblies incorporating them, in order to obtain the following advantages:

- a) The maximum economy in the production of components by variety reduction;
- b) The reduction in manufacture of non-standard units;
- c) The avoidance of wastage in cutting components on site by achieving maximum flexibility in assembly; and
- d) The interchangeability of components giving more choice and flexibility for designers.

0.3 In order to achieve the co-ordination of dimensions, it is necessary first to reduce the number of possible sizes that are to be used, that is, a selection of sizes must be made. The method adopted here is to select one or more units of size or modules, and using the multiples of these to obtain preferred sizes for components and assemblies. This corresponds to the dimensional co-ordination adopted by building and construction industries as given in IS:1233-1969*.

0.4 From this selection, ranges of sizes will be established for particular components and published in subsequent series of Indian Standards having

*Recommendations for modular co-ordination of dimensions in the building industry (*first revision*).

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regard to the functions of the components, materials and methods of manufacture used and other components to which they will be related within ship.

0.5 The tolerances on the size and form of the components and on their assembly in the ship also need to be determined. IS:6408-1971* sets out a system for such control in the building construction industry, and a similar application is intended for shipbuilding.

0.6 This standard is one of a series of Indian Standards on dimensional co-ordination in shipbuilding. The other parts in the series are:

Part I Principles of dimensional co-ordination,

Part II Glossary of terms, and

Part IV Controlling dimensions.

1. SCOPE

1.1 This standard (Part III) makes recommendations for the derivation of the sizes for the co-ordinating dimensions of components and assemblies for use in fitting out ships, with particular reference to ships' deckhouses and accommodation.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS:8712 (Part II)-1978† shall apply.

3. CO-ORDINATING SIZES

3.1 The first selection of sizes for the co-ordinating dimensions of components and assemblies should be in multiples of the standard modules, as follows, in descending order of preference:

$$n \times 300 \text{ mm}$$

$$n \times 100 \text{ mm}$$

$$n \times 50 \text{ mm}$$

where n is any natural number including unity.

*Recommendations for modular co-ordination, application of tolerances in the building industry.

†Guidelines for co-ordination of dimensions in shipbuilding: Part II Glossary of terms.

3.2 The sizes for the co-ordinating dimensions should be chosen from first selection after consideration of the relevant functional requirements. The preferred sizes should, as far as possible, apply to each type of component irrespective of the materials used. Account should be taken of the need for different types of components or assemblies to occupy spaces of the same size. Where a number of components are used to build up an assembly, the overall size for the assembly should be a co-ordinating size.

3.3 The work sizes of the components and assemblies should be determined taking into account space for joints and allowance for tolerances in accordance with IS:6408-1971*.

*Recommendations for modular co-ordination application of tolerances in building industry.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Conversion</i>
Force	newton	N	1 N=0.101 972 kgf
Energy	joule	J	1 J=1 N.m
Power	watt	W	1 W=1 J/s
Flux	weber	Wb	1 Wb=1 V.s
Flux density	tesla	T	1 T=1 Wb/m ²
Frequency	hertz	Hz	1 Hz=1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S=1 A/V
Pressure, stress	pascal	Pa	1 Pa=1 N/m ²